

EXHIBIT 4

DATA TELECOMMUNICATIONS DICTIONARY

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Series Editor-in-Chief
Saba Zamir

STANDARD-SETTING 820-PAGE TECHNICAL
REFERENCE WRITTEN IN PLAIN LANGUAGE.
GENEROUSLY ILLUSTRATED WITH MORE THAN
300 CHARTS AND DIAGRAMS.



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scanners, robot vision systems, etc.

chase In mechanical printing, an open steel or wood frame used to hold the various blocks of type and engravings that make up a page layout. *Furniture* (nonprinting spacer blocks), and *quoins* (nonprinting pressure blocks) employ friction and pressure to hold the various printing elements in place. The contents extend slightly above the surface of the chase, and are inked for printing on a traditional press.

chase trigger In digital recording techniques, there are some legacy analog time code technologies that cause problems when applied to a digital environment. Digital audio, for example, is recorded according to a system clock. If the frequencies vary, there may be audio artifacts that cause unwanted noise in the recording. A chase trigger is a means of synchronizing time code by starting the sound segment when a particular time trigger occurs. Once it is triggered, it follows its own clock speed irrespective of whether the underlying recording that initiated the trigger has remained steady. If the underlying signal is stable, it's not a problem, but in some recording environments, stability is hard to guarantee. See house sync, reference clock, time code.

chat In online computer telecommunications, chat refers to private or public message areas in which participants type messages to one another in a somewhat real-time manner. Internet Relay Chat (IRC) is the largest chat forum on the Internet, although some of the large service providers have their own subscriber chat channels. Chat lines can be set up to be keyword protected, to offer private or group conference conversations. Chats with celebrities are sometimes moderated to keep the conversation to a level in which the comments are not too rapid or overwhelming. Anyone can open a public chat channel on IRC. To create a new chat, or join a current chat, you enter the IRC server and type #join mychatchannel (e.g., #join gardening), or select join from the menu, if using a menu-based IRC software client. It is not acceptable on IRC to make off-topic comments, or to denigrate other participants or their viewpoints. See Internet Relay Chat, Netiquette, Netizen.

chatter 1. In circuits, a repetitive, undesirable, fast clicking or opening and closing of a circuit. Power fluctuations can sometimes cause chatter. Unchecked, it can lead to damage of equipment, and interference with communications. 2. In servos, styluses, and other moving control mechanisms, quick, short oscillations in a direction other than the desired di-

rection (often perpendicular to the desired direction) cause by friction, or power fluctuations, or improper calibration, or improper mounting (too loose or too tight).

cheapernet jargon Cheaper, maybe-not-as-fast, affordable networks, such as Ethernet running over thin coaxial cable.

check bit A bit, or a group of bits, used for a variety of error housekeeping functions. A single bit is often used for parity checking, whereas 7 or 16 check bits may be used for various cache functions. See checksum, parity.

checksum A computed value commonly used for assessing data integrity and detecting errors or anomalies. Checksums are used in file systems, encryption systems, and packet transmission protocols. In networks, checksums can help to determine, with a reasonable degree of confidence, whether a packet has arrived at its destination unchanged. See check bit.

cherry picker *colloq.* An industrial crane arranged with a one or two person 'bucket' to raise workers to levels that cannot easily be reached by other means. These are used to access fruit trees, windows, utility poles, and other high places. See lineman.

cherry picking *colloq.* Selecting only the calls most likely to 'bear fruit' and assigning them appropriately. In other words, when a call comes in, over a phone, or over a modem, those callers which are in some way identified or prescreened to be the most likely to benefit the callee, usually by purchasing products or services, or by investing in the company, are processed as a priority.

Cherry picking is also done with reader service inquiries. When magazine readers send in reader service cards, these inquiries are forwarded to the appropriate vendors. The vendor sheets sometimes include statistics gathered by the magazine, such as how many boxes the inquirer checked, and their job titles. Thus, the vendor can select and respond first to those most likely to produce revenue for the company.

Chicago The development code name for Microsoft's Windows 95. It is common for developers to assign code names to products for many reasons. Sometimes it helps protect information about the nature of the product, it assists developers in communicating about the product, and it serves as a holdover until marketing personnel come up with a good name

network administrators tolerated on their systems, because the development and administration of a MUD involved the exercise of quite a few gray cells, and involved more programming and technical expertise than the usual shoot-em-up games that distracted students from their studies. MUDs involve fantasy characters, developed by the players, which interact in various 'rooms' within the MUD. The first MUD has been attributed to R. Bartle and R. Trubshaw at the University of Essex.

MUF maximum usable frequency.

Multi-Vendor Integration Protocol MVIP. MVIP originated in 1989 from an initial consortium of three companies, Natural MicroSystems, Inc., Mitel, and GammaLink, and four more helped the project to coalesce a year later. MVIP has since become one of the two common software/hardware bus standards in computer telephony (along with SCbus). The purpose of the standardization was to bring together the various telephone and computer technologies so they could readily interconnect and intercommunicate. MVIP provides an open, nonproprietary, uniform, yet flexible way of providing telephony components with computer equipment through open software development environments. In other words, phone-related technologies can be accessed and controlled through a desktop computer. The MVIP standard includes the capability to reconfigure 'on the fly' to handle various call functions.

The original single-chassis standard designed for a synchronous environment was MVIP-90 and additional versions followed, including H-MVIP (high capacity MVIP), and MC-MVIP (multi-chassis MVIP). The MVIP Versions chart shows three MVIP formats.

multicarrier modulation MCM. A number of modulation techniques for multiplexed transmission of data by dividing the communications channel into smaller units and evaluating the units individually in terms of speed and suitability for transmission. MCM is used to implement Digital Subscriber Line (DSL) services over existing twisted pair copper wires, which can vary widely in their characteristics.

MCM optimizes bandwidth usage for multiple media transmissions and reduces interference from impulsive and narrowband noise. See carrierless amplitude and phase modulation, orthogonal frequency division multiplex, discrete multitone, discrete wavelet multitone.

multicast A type of Internet Protocol (IP) address identifier for a set of interfaces. Frames

sent from one end station are received by one or more end stations. In IPv6 *multicast addresses* supersede *broadcast addresses*. In ATM networking, the form of the multicast command is: atm multicast <address>. See anycast, unicast, IPv6 addressing, multicast backbone.

multicast backbone Mbone. Technology that extends the Internet Protocol (IP) to support multicasting, developed by Steve Deering at Xerox PARC. The Mbone was adopted by the Internet Engineering Task Force (IETF) in 1992.

Mbone supports two-way transmissions of data between multiple network sites. Thus, with Mbone, a single packet can have multiple destinations and pass through a number of routers before being split up to run through different paths. The packets reach their destinations at about the same time. This leads to greater support for multimedia capabilities over the Internet. Mbone systems are assigned Class D Internet Protocol addresses.

Multichannel Interface Processor MIP. A Cisco Systems interface router processor which provides up to two channelized T1 or E1 serial cable connections to a channel service unit (CSU).

Multichannel Point-to-Point Protocol MPP. A protocol from Ascend Communications that is similar to Point-to-Point protocol (PPP), but which supports multiple network channels in inverse multiplexed systems.

multifeed dish, multifocus dish A type of parabolic satellite receiving dish which can be positioned to capture signals from more than one satellite at a time, with the signals being reflected to a series of feedhorns.

multilevel coding A coding scheme or system, usually bandwidth efficient encoding, for carrying more data through a channel in a specified period of time. There are many approaches to improving the efficiency of transmissions.

Multilink Protocol PPP. Multilink is an Internet standards-track protocol which enables the splitting, recombining, and sequencing of datagrams across multiple logical data links. Originally designed as a software solution for implementing multiple simultaneous channels over ISDN, the concepts are generalizable to multiple PPP links between two systems. The purpose of multilink implementation is to coordinate multiple independent links (i.e., to aggregate a bundle) between a fixed pair of

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